Iowa Science Teachers Journal

Volume 20 | Number 2 Article 10

1983

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Recommended Citation

Yager, Robert E. and Bonnstetter, Ronald J. (1983) "Students' Views of Science Teachers, Classes, and Course Content," *Iowa Science Teachers Journal*: Vol. 20 : No. 2 , Article 10.
Available at: https://scholarworks.uni.edu/istj/vol20/iss2/10

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STUDENTS' VIEWS OF SCIENCE TEACHERS, CLASSES, AND COURSE CONTENT

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The Third Assessment of Science, part of the National Assessment of Educational Progress (NAEP), provided needed views concerning successes and failures of school programs (Holmes & Wright, 1980; National Assessment, Note 1). For the first time, the 1977 assessment of science included an extensive battery of items dealing with the affective domain. Present plans include abandoning future assessments in science that would permit a longitudinal study of such outcomes of science instruction. This unfortunate situation prompted the authors to replicate the study with Iowa samples five years later.

The National Assessment of Educational Progress routinely gathers information about levels of educational achievement from a stratified sample across the United States. The questions used are all reviewed by education specialists (in this case science), measurement experts, and lay persons. The questions are then administered to probability samples. A total of 2,500 persons are selected to represent all persons aged 9, 13, and 17, and a young adult sample. This method was used to conduct the 1977 assessment in science. For the 1982 Iowa study a sample of 700 persons at the same age levels was selected by staff in five of the Iowa Area Education Agencies. The proportions responding in each category, both in the 1977 NAEP assessment and in the Iowa follow-up, constituted a number large enough to permit generalizations about all persons at each age level in the entire United States or in Iowa. Performance is reported in terms of percentages of the particular sample answering in the manner indicated (see Table 1).

Because of reading ability and maturational level, the questions administered to 9-year-olds were less extensive than for 13 and 17-year-olds. The young adult population included persons 26-35 years old who were actively employed. The eleven categories of this report represent those for which information is available at each of the four age levels.

The view of current and past students concerning their science teachers is reported in Table 1. Elementary school students indicate that their teachers frequently admit not knowing answers to student questions. Thirteen and 17-year-olds as well as young adults report that the science teachers they have had rarely admit to not knowing. Secondary school teachers are reported to be positive about science (a view held by adults although to a lesser degree than 17-year-olds). This is in contrast to students in elementary school — where ony 37 percent feel their teachers really like science.

The older the students, the less likely they are to report that their science teachers make their study of science exciting. This feeling continues to decline when the adult sample is polled. Similarly the encouragement of teachers for their students to share ideas declines as students progress through school; the perception of the adult sample is lowest of all four groups.

Table 1 also includes information regarding percentages of 9, 13, 17-year-olds and young adults with varying perceptions of science classes and science content. It is interesting and alarming that the longer the school experience with science, the fewer the students who perceive it as fun. Further, this decline in perception continues into adulthood. In a similar manner, the number reporting their study of science as interesting decreases as does the number who feel their study of science makes them feel "successful." The number who report that the study of science makes them feel "excited" is rather steady while students are in school. However, adults report such study (after the fact) to have been less exciting.

Table 1
Comparison of 9, 13, 17-year-old and Adult Samples
Responding Positively About Science Classes,
Content of Science, and Science Teachers

Situation	9-year-olds		13-year-olds		17-year-olds		Adults	
	1977	1982	1977	1982	1977	1982	1977	1982
	Percent of Responses							
A. Science Teachers:								
1) Admit to not knowing	45	48	20	23	17	15	15	18
2) Really like science	37	31	78	76	81	80	61	65
3) Make science exciting	70	68	58	56	41	45	38	34
4) Encourage me to share ideas	66	63	42	40	44	42	30	28
B. Science Classes:								
1) Are fun	62	57	40	41	27	28	20	23
2) Are interesting	85	86	48	52	45	43	18	17
3) Make me feel:								
a) uncomfortable	5	6	15	20	19	22	28	30
b) successful	56	58	38	36	28	27	20	19
c) excited	50	56	46	44	51	49	31	28
C. Content of Science:								
1) Is useful now	74	69	78	74	80	79	46	41
2) Will be useful in future	93	92	74	74	65	67	22	23

1977 — Based on data from Third Assessment of Science, 1976-77 NAEP (n = 2500)

1982 — Based on follow-up survey conducted at Science Education Center, The University of Iowa, Iowa City, IA (n = 700)

Of interest in Table 1 is the varying attitude about the usefulness of the study of science. Students generally report that science study is useful. In fact the number with such feelings increases throughout the school years. However, the young adults report a marked change in attitude about the usefulness of their study of school science. The student view of the value of school science for future living is rather positive although it does show declines from 93 percent of the 9-year-old sample to about 65 percent of the 17-year-olds. Also of interest is the fact that the number of adults with such a view of the future value of school science is cut by over 50 percent.

The results of this study suggest several questions: Why does the number of students who report the study of science as fun decrease through the school years and decline even further among young adults? Why is the perception of school science more positive for students currently enrolled than it is for young adults recalling their school experiences? Why do science teachers feel compelled to show they know all the answers? Why does the student perception that science teachers make science less exciting increase as those students continue their studies? Why do young adults have less complimentary feelings about their science teachers and their ability to interest them than they have about other teachers?

Perhaps some of the new directions for school science being designed will correct some of the problems revealed by such studies as this. For example, a major part of the Project Synthesis effort was to define a more ideal state for science education in K-12 settings (Harms & Yager, 1981). If such new directions materalize, perhaps school science will fare better when future assessments are conducted. In view of these findings, it would be heartening if advanced experiences in school science would merely sustain the relatively positive views held by nine-year-olds.

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